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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------------|------------------------|
| 10/813,758 | 03/31/2004 | Samit Kumar Basu | 140361-1/YOD GERD:0123 | 5263 |
| 41838 7590 06/04/2008 GENERAL ELECTRIC COMPANY (PCPI) C/O FLETCHER YODER P. O. BOX 692289 HOUSTON, TX 77269-2289 | | | EXAMINER BITAR, NANCY | |
| | | | ART UNIT 2624 | PAPER NUMBER |
| | | | MAIL DATE 06/04/2008 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/813,758 | Applicant(s) BASU ET AL. | |
| | Examiner NANCY BITAR | Art Unit 2624 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/31/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant election of Group II, claims 12-30 has been received on 04/09/2008

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 16, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Examiner Notes

3. Examiner cites particular columns and line numbers in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested that, in preparing responses, the applicant fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 12-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraoglu et al (US 6,026,171) in view of Liang et al (US 2003/0076988).

As to claim 12, Hiraoglu teaches a method for generating a variance map from measured projection data acquired from a tomography system comprising:

accessing the measured projection data from the tomography system (column 14, line 49);
formulating a variance measure based upon the measured projection data (column 17, lines 49-65, the CT reconstruction process of projection data to CT slices is incorporate by reference, see abstract of US 5,802,134, also see column 15, lines 51-52); While Hiraoglu meets a number of the limitations of the claimed invention, as pointed out more fully above, Hiraoglu fails to specifically teach the and generating the variance map from the variance measure using a reconstruction algorithm. Specifically, Liang et al. teaches generating a curve for variances and means given the raw data, fitting the curve by a functional form, determining, for a fitted curve, a transformed space having substantially constant variance for all means, and filtering the raw data in the transformed space. Because the generation of variance map using a reconstruction algorithm helps in analyzing reconstructed tomography images and improve image acquisition. It

would have been obvious to one of ordinary skill in the art to generate the variance map in Hiraoglu bag image in order to increase noise reduction, and lower radiation, and maintain high image quality for CT technology. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

As to claim 13, Hiraoglu teaches determining variability of a mean pixel value caused by noise factors and artifact factors associated with the measured projection data based upon the variance measure (the mean and standard deviation/variance of each pixel is propagated through CFAR and CCL steps to discrimination step, which determines whether an object poses threat by comparing the mass of the object with the mass threshold, see equation 10).

As to claim 14, Hiraoglu teaches the method of claim 12, wherein formulating a variance measure is based on a statistical model (note that statistical data analysis approaches such as simulated annealing and genetic algorithms can be employed by determine parameter required to adjust the individual rates as required for a particular desired overall system performance , column 36, lines 9-16).

As to claim 15, Liang et al teaches the method of claim 12, wherein the reconstruction algorithm is a weighted filtered backprojection reconstruction algorithm (Relying on the weights .SIGMA. on the estimation of the variance as computed from the above mean -variance curve and the measurements themselves, a functional fitting can be applied to match the above mean - variance curve, paragraph [0091]).

As to claim 16, Liang et al teaches the method of claim 12, wherein the reconstruction algorithm is a fast reconstruction algorithm such as a Fourier-based algorithm, a hierarchical algorithm, or a coarse reconstruction based on downsampled projection data and/or image data (use of the fast filtered projection (FBP) reconstruction technique, paragraph [0047]).

As to claim 17, Liang et al teaches the method of claim 15, wherein the reconstruction algorithm is adapted to operate on the variance measure to generate the variance map (figure 2, block 201).

As to claim 18, Hiraoglu teaches the method of claim 12 further comprises displaying, analyzing or processing the variance map (column 15, lines 65-67).

As to claim 19, Hiraoglu teaches the method of claim 12, wherein the measured projection data is reconstructed to generate original image data and wherein the original image data is displayed or analyzed based upon or in conjunction with the variance map (column 17, lines 49-65).

As to claim 20, Hiraoglu teaches the method of claim 12, further comprising identifying features of interest in the original image data based upon the variance map (see step 301, figure 5).

The limitation of claims 21-24 has been addressed in claims 12-15

The limitation of claim 25 has been addressed in claim 17.

As to claim 26, Liang et al teaches the method of claim 21, wherein the measured projection data is reconstructed to generate original image data and wherein the original image data is displayed analyzed or processed based upon the variance map (figure 3, 301).

The limitation of claim 27 has been addressed in claim 20.

The limitation of claim 28 has been addressed above on that claim 18 is a system claim whereas claim 1 is a method claim .Therefore; claim 28 is analyzed as previously discussed.

The limitation of claims 29 and 30 has been addressed above

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NANCY BITAR whose telephone number is (571)270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew W. Johns/
Primary Examiner, Art Unit 2624

Nancy Bitar

5/30/2008